AMENDMENTS TO THE DRAWINGS

Please add the following new drawing Figures 6 and 7, in response to the Examiner's request, and as explained in the Remarks section of this Amendment:

Attachment: New Sheet(s): 2 (Figures 6 and 7)

REMARKS

Claims 1 to 21 are all the claims pending in the application.

The Examiner has attached to the Office Action a copy of the PTO/SB/08 A & B (Modified) Form filed with the Information Disclosure Statement of June 17, 2005. The Examiner has initialed and dated this Form.

At page 4 of the Office Action, the Examiner states that the Information Disclosure Statement filed on June 17, 2005 does not comply with the requirements of the rules because a copy of the non-patent literature (NPL) was not provided. The NPL document listed on this form is the Database WPI XP002277918 document. Although the Examiner states in the Office Action that this document was not considered, he nevertheless initialed this document on the PTO/SB/08 A & B (Modified) Form. Accordingly, the Examiner's statement in the Office Action is inconsistent with his initialing of the Form. Therefore, it is not clear whether this document has been considered.

In any event, applicants enclose a copy of this document, and ask the Examiner to clarify the record with respect to the status of this document, and to consider and make it of record.

The Examiner makes of record the telephone restriction requirement and applicants' election of Group I, claims 1-8. The Examiner states that applicants must affirm this election when replying to the Office Action. The Examiner notes that the election was made with traverse.

In response, applicants hereby affirm the election of Group I, claims 1 to 8. Applicants affirm this election without traverse.

The Examiner has objected to the drawings.

The Examiner states that the drawings must show every feature of the invention set forth in the claims. The Examiner identifies two features of the invention that are set forth in the claims, but which are not shown by drawings.

The first feature identified by the Examiner is "the Infrared Spectrum of the heat-treated barium titanate particles, wherein no abrupt peak is detected at around 3500 cm^{-1}."

The second feature is the "lack of voids in the barium titanate particle as described in the specification." The Examiner states that Examples 3 and 4 of the present specification specifically mention that TEM images were obtained, but that the application fails to include these images. The Examiner asserts that this is an essential element of the present invention and, therefore, an image is necessary for the claimed invention to be truly enabled.

The Examiner states that corrected drawing sheets are required to show the omitted features, and that no new matter must be included in the new drawings. Alternatively, the Examiner states that the objected to features should be canceled from the claims.

With respect to the feature of no voids, applicants enclose a new drawing containing Fig. 6, which is a TEM of the barium titanate particles of the present invention where no voids are shown on the particles.

Figure 1 of the present application is a TEM photograph showing voids. The TEM of Figure 6 does not represent new matter because it only shows what is described in the specification, namely, a barium titanate powder with no voids. Further, applicants submit that a drawing or photograph is not necessary to show the absence of a feature, and is not necessary for

enablement. The drawing in Figure 1 shows the presence of such a feature, and one of ordinary skill in the art would readily understand that particles with no voids would not have the defects shown in Figure 1. Accordingly, applicants submit that the drawing is not necessary for enablement.

With respect to the feature that no abrupt peak is detected at around 3500 cm^{-1}, applicants enclose herewith a new drawing, containing Fig. 7, showing no abrupt peak at 3500 cm^{-1}. Applicants submit that the drawing does not contain new matter because it only shows what is described in the specification, namely, an infrared spectrum analysis of the particles after heat treatment, wherein there is no abrupt peak at around 3500 cm^{-1}.

Applicants have amended the specification to refer to these new drawings.

In view of the above, applicants request withdrawal of these objections.

Claim 15 has been objected to as being informal because the word "detected" is misspelled. This term appears in claim 5, not claim 15. Applicants have amended claim 5 to correct this typographical error.

Claims 1-8 have been rejected under the second paragraph of 35 U.S.C. § 112 as indefinite.

The Examiner states that the sentence structure in claim 1 is awkward. In particular, the Examiner states that it is not clear what the object is of the modifying clauses "having a diameter of 1 nm or more" and "in an amount of 20% or more."

The Examiner states that these two phrases, especially the first phrase (having a diameter of 1 nm or more), could modify either the actual particles or the voids within the particles.

The Examiner further states that the second clause could be one that modifies the number of particles or the porosity of the particles.

The Examiner states that the problems set forth with respect to claim 1 also apply to the recitations in claims 2 and 3 and to claims that depend from claim 1.

The phrase "having a diameter of 1 nm or more" refers to the voids within the particles, as is clear, for example, from the disclosure at page 16, lines 12-27 that refers to "voids having a diameter of 1 nm or more." The phrase "in an amount of 20% or more" modifies the number of particles, as is clear from the disclosure at page 16, lines 9-11 of the specification. While applicants believe that original claim 1 clearly indicates these concepts, applicants have amended claims 1 to 3 as set forth above to make this even clearer.

In view of the above, applicants request withdrawal of this rejection.

Claims 1-4 and 6-8 have been rejected under 35 U.S.C. § 102(a) as anticipated by the S. Wada et al article appearing in the Proceedings of the IEEE International Symposium on Applications of Ferroelectrics, 2002, pages 263-266.

Applicants submit that Wada et al do not disclose or suggest the presently claimed invention and, accordingly, request withdrawal of this rejection.

The present invention as set forth in claim 1 is directed to a barium titanate, which is single crystal in the form of particles, wherein 20% or more by number of the total particles do not contain a void having a void diameter of 1 nm or more.

Wada et al disclose nm-size impurity free and defect free barium titanate single crystal powder particles, but do not disclose or suggest barium titanate particles wherein 20% or more by number of the total do not contain a void having a diameter of 1 nm or more.

Wada et al do not disclose the percentage of defect-free particles.

The Examiner recognizes that Wada et al do not disclose the percentage of defect-free particles, but argues that "the language of the author leads one to reasonably believe that . . . nearly all of the particles created were free of defects."

The Examiner, however, does not provide any reason or explanation of why one would reasonably believe that nearly all of the particles were free of defects.

Wada et al disclose, at page 265, right-hand column, that the actual density of the particles measured by a syncometer method was 5.78 g/cm^3, whereas the theoretical density of the particles calculated from the lattice constant was 5.89 g/cm^3.

Since Ba/Ti = 1.000, as disclosed in Wada et al at page 263, in the "Experimental" section, the obtaining by Wada et al of a lower actual density than the theoretical density necessarily indicates that the Wada et al particles have voids.

In Wada et al, the void volume of the particles calculated from the actual and theoretical densities is about 1.7%.

Therefore, applicants submit that Wada et al do not disclose or suggest the subject matter of claim 1 and the claims dependent thereon.

In view of the above, applicants submit that Wada et al do not disclose or suggest the subject matter of the present claims and, accordingly, request withdrawal of this rejection.

Claim 5 has been rejected under 35 U.S.C. § 103(a) as obvious over the Wada et al article in view of U.S. Published Application No. 10/244828 to Venigalla et al.

Claim 5 depends from claim 1. Accordingly, applicants submit that claim 5 is patentable over Wada et al for the same reasons as claim 1, as discussed above. Venigalla et al do not supply the deficiencies of Wada et al.

In view of the above, applicants request withdrawal of this rejection.

Claims 1-8 have been provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 2 of copending application no. 10/189,371.

Since the claims of the copending application have not yet issued and have been rejected, applicants submit that this rejection is premature and, therefore, defer responding to this rejection. If the claims of the present application are in condition for allowance before the copending application is allowed, the double patenting rejection can be withdrawn and the present application can be passed to issue.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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